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fever, cholera, and the like diseases" is a vegetable organism, rather than a minute particle of disorganized organic matter, is but an hypothesis and nothing more. So far as it has been attempted to be demonstrated by the experiments of Hallier and others, it has utterly broken down, and the ablest fungologists in the kingdom — Berkley and others — are distinctly opposed to it, as are, we believe, the more scientific of our modern physicians.

ZOOLOGY.

HABITS OF THE STRIPED SQUIRREL. — I lately noticed in my garden a bright-eyed chipmunk, *Sciurus striatus*, advancing along a line directly towards me. He came briskly forward, without deviating a hair's breadth to the right or the left, till within two feet of me; then turned square towards my left — his right — and went about three feet or less. Here he paused a moment and gave a sharp look all around him, as if to detect any lurking spy on his movements. (His distended cheeks revealed his business: he had been out foraging.) He now put his nose to the ground, and, aiding this member with both forepaws, thrust his head and shoulders down through the dry leaves and soft muck, half burying himself in an instant.

At first, I thought him after the bulb of an *erythronium*, that grew directly in front of his face and about three inches from it. I was the more confirmed in this supposition, by the shaking of the plant.

Presently, however, he became comparatively quiet. In this state he remained, possibly, half a minute. He then commenced a vigorous action, as if digging deeper; but I noticed that he did not get deeper; on the contrary, he was gradually backing out. I was surprised that, in all his apparent hard work (he worked like a man on a wager) he threw back no dirt. But this vigorous labor could not last long. He was very soon completely above ground; and then became manifest the object of his earnest work: he was refilling the hole he had made, and repacking the dirt and leaves he had disturbed. Nor was he content with simply refilling and repacking the hole. With his two little hand-like feet he patted the surface, and so exactly *replaced the leaves* that, when he had completed his task, my eye could detect not the slightest difference between the surface he had so cunningly manipulated, and that surrounding it. Having completed his task, he raised himself into a sitting posture, looked with a very satisfied air, and then silently dodged off into a bush-heap, some ten feet distant. Here, he ventured to stop, and set up a triumphant "chip! chip! chip!"

It was now my turn to dig, in order to discover the little miser's treasures. I gently removed enough of the leaves and fine muck to expose his hoard — half a pint of buttercup seeds, *Ranunculus acris*. I took out a dozen seeds or so, re-covered the treasure as well as my bungling hands could, and withdrew filled with astonishment at the exhibi-

tion of cunning, skill and instinct of this little abused denizen of our field-borders.

In my boyhood days I had killed many of the little fellows; had unearthed the treasures in their burrows many times; had seen them, as I supposed, under every variety of aspect; in short, I thought I knew the chipmunk, every inch; but here was a new revelation of chipmunk character, for which I was totally unprepared.

It grieves me that I find it utterly impossible with words to convey adequately to you and your readers anything like a complete picture of the motions, the skill, the carefulness, the completeness of effect, and the consequent satisfaction exhibited by this little harvester. I have never read nor heard of any other man's having witnessed a similar scene, nor do I expect myself ever again to witness one. My opportunity for observation was perfect as it could possibly be; for he was so near me that I could almost stoop over and lay my hand on him, while he was half buried under the leaves.

The lesson is perfect; for what our chipmunk does, all chipmunks do, under the same circumstances. Where does instinct stop, and reason begin? Wherein does instinctive, *irrational* skill differ from rational skill?—IRA SAYLES, *Rushford, Alleghany Co., N. Y.*

CONCHOLOGICAL NOTES. — Mr. C. B. Fuller, of Portland, has recently discovered *Littorina litorea* Linn., at Kennebunkport, Maine. Willis records it as being found at Halifax, N. S., and we have always understood it to be common in the Bay of Chaleur. This is the first time it has been found so far south. This species is identical with the common Periwinkle of the English coast, and its increase may be hoped for, as it will introduce a new article of food to our poorer classes. Immense quantities are consumed in England, one firm in London purchasing seventy thousand bushels per annum. They are very prolific and are ravenous vegetarians. Oyster merchants use them to keep down the growth of seaweed in their oyster beds.

For the first time we record the discovery of two species of *Melanians* from Massachusetts. Specimens have been sent by William P. Alcott of North Greenwich, Conn., collected by him on the shores of Lanesboro Pond, Lanesboro, Mass. We identify *Melania Virginica* Say, and *Melania carinata* DeKay.

FUNCTIONS OF THE NERVE-CENTRES OF THE FROG. — Professor F. Goltz of Königsberg has been continuing his observations on the different nerve-centres of the frog. After removing the cerebrum with as little effusion of blood as possible, the frog remained on the table in exactly the position of a sound animal, and without any indication of the injury it had sustained; but, of its own accord, would never change the position once assumed. If pinched or pressed, it would turn itself round, or remove itself by a leap from the external pressure, but would then remain equally unchangeable in its new attitude. It can indeed be induced by external

means to go through actions which it would not ordinarily perform voluntarily, so that to a bystander it would almost appear to have undergone a course of training. Professor Goltz made some curious investigations on the source of the croaking power of the frog. Of its own accord it never croaks when deprived of its brain; but can easily be induced to do so by stroking it softly down the back from the front to the hinder part with the damp finger, every stroke being accompanied by a croak of satisfaction. From a number of such animals a complete concert of frogs can be obtained in this manner. The mutilated frog possesses also the power of preserving the equilibrium of its body. If placed on a book, to which a gradual inclination is given, it climbs to the upper edge, on which it supports itself by its forelegs, and repeats the process every time that the inclination is changed. Under similar circumstances an unmaimed frog would quickly hop to the ground. The movements of the frog, from which the brain has been removed, differ from those of the unmaimed animal in this respect, that they are performed mechanically, and with the regularity of a machine. It would also appear, from these experiments, that the nerve-centres for the voice and for the power of maintaining equilibrium reside, not in the brain, but in the spinal cord.—*Academy*.

THE COMPRESSED BURBOT OR EEL POUT.—In the March (1869) number of the *NATURALIST* is a paper with the above title by Wm. Wood, M.D. After giving the history, locality, number of specimens and their description, he then says: “The *Lota compressa* probably visits the salt water, as it is taken in ascending the Connecticut, or its tributaries, in the spring of the year in company with fish from the salt water ascending to spawn.”

My first acquaintance with this rare fish was early in the spring of 1859. A specimen was brought me from West River, about a mile north of our village, where that stream joins with the Connecticut, and where it was “hooked up” while angling for other fish. Afterwards in 1864, another specimen was caught in the Connecticut River, opposite our village, with a baited hook set for eels. Both were of such extraordinary dimensions (being severally twelve and fourteen inches in length) that I published the fact, because I knew that the specimen of Lesueur, who first described the species was only six inches in length, and that of Storer who gave a description of a second specimen from Ashuelot River was eight inches long. As I had lived many years near these waters, and supposed myself to be well acquainted with their different denizens, and, moreover, had never seen this genus before, not even their fry, I was led to inquire whence they came.

It first occurred to me that they might have come up from the salt water, but the many impediments in the Connecticut, which are such well-known obstacles in the way of the migrations of fish, forbade at once the entertainment of this idea. Be that as it may, an incident has recently come to my notice which may shed some light on their early history, and certainly on one of their species.

On our farm is a swamp of about three acres, from which issues a rivulet, perhaps three feet wide and three to five inches deep. I have known for some years the existence of a peculiar fish in this little stream, for on approaching its banks I have often perceived quick efforts at concealment of something in the dark mud of the little pools along its coast. All my attempts to obtain a full view of the fish proved fruitless, but I judged by the ripples it made on the surface of the water, while passing shallow places that it must be some three or four inches in length. Recently whilst our woodchopper was at work in this swamp, he cut down a tree which fell into one of these pools, and a fish was thus thrown out upon the snow. It proved to be a veritable *Lota* about three and one-quarter inches long. It resembled *Lota compressa* in every particular, except that its thickness might have been greater in proportion to its length.

This rivulet empties into Whetstone brook, a stream ordinarily about two rods wide and two or three feet deep, and has a bed differing little from that of the Connecticut River. I have lived by this stream a number of years, and have never seen a *Lota* in its waters. The Whetstone empties into the Connecticut about a mile from the mouth of the rivulet. In this distance are two obstructions, partly natural and partly artificial, one thirty feet, the other twenty feet high, so that it cannot be supposed that there is any egress from the river to the rivulet by water.

The fishes of the Whetstone are *Salmo fontinalis* Mitch., *Rhinichthys atronasmus* Agas., *Boleosoma Olmstedii* Agas., *Semotilus argenteus* Putn., *Plargyrus Americanus* Putn., and *Holomyzon nigricans* Agas.; the three latter were introduced by me some twenty years ago. I have been thus minute in giving all possible data, in order that a better judgment may be formed, whether these swamps are the breeding places of *Lota compressa*, or whether the specimen mentioned above may not be a new species.

The train of thought to which a solution of these questions might give rise, would naturally lead us to examine into the effects that purely local or particular causes may have upon the development and forms of fish life. With respect to the size of this specimen, being much smaller than those found in the Connecticut, we may say, that all fish of the same species found in large streams are generally larger than those found in small ones. We have a perfectly analogous example at hand in regard to the *Salmo fontinalis* of the Connecticut, which occurs of larger dimensions than in the Whetstone, the disparity being as striking in the latter case as in the former. — CHARLES C. FROST, *Brattleborough, Vt.*

A WHITE WOODCHUCK. — It may interest you and some of your readers to know that I have obtained a perfectly white woodchuck, a perfect albino of *Arctomys monax* of Gmelin. There is not a dark hair on his body or tail, and his eyes are of a clear, rich, carnelian color. He was caught on North-west hill in Williamstown, Mass., and brought to me alive. From the first he fed freely on clover, especially the clover heads,

and made a nice nest for himself from the part discarded as food; in this nest he spent most of his time taking nearly the form of a ball. He always exhibited a readiness to bite, and it was not safe to touch him with the hand. One day I carried him, in his small cage, to my lecture room, and afterwards put him in my private room and left him alone. When I returned I found him out of the box or cage, and bottles and trays of natural history specimens scattered upon the floor. After disturbing things generally he had taken up his position behind a large box of fossils. From his retreat he looked as unconcerned as if nothing had happened. Without much trouble I secured him in his box again, and carried him home and put him in a large cage in my cellar which is well lighted and ventilated. About midway between the top and bottom of this cage is a shelf which touches the bars or slats in front, and extends backwards about half the depth of the cage. This shelf was put in so that the woodchuck might have something to rest upon besides the floor of the cage. After the cage was done it was desired to turn it so that what is naturally the back should be the bottom, the slats or bars thus being on the top instead of at the side; this brought the shelf into a vertical instead of a horizontal position. Now observe what this woodchuck did: he gnawed through the edge of this shelf, which was against the bars, in order to get into the other part of his cage, although there was a space of eight or ten inches below the lower edge of the vertical shelf for the whole width of the cage, and when he was disturbed he often run through this hole instead of going along on the bottom.

I was interested to see that he used everything he could get to enlarge and perfect his nest, not only all of his discarded clover stalks, and the rags which I gave him, but also all the chips which he gnawed from his cage. But he did not get thoroughly tamed, and so availing himself of the absence of a board, which had covered a hole which he had been gnawing, he squeezed out through the hole, scaled the cellar wall, and escaped through an open cellar window. A few weeks afterwards he was killed by a farmer's dog, and I have sent his skin to Mr. Jillson to be mounted.

Mr. Hitchcock of this town, informs me that he has seen a living white woodchuck in New Lebano, N. Y. — S. TENNEY, *Williams College*.

RARE BIRDS IN NOVA SCOTIA. — I observe in the last number of the NATURALIST a note on the occurrence of the *Pomarine Jager* (*Lestris pomarinus*), on the Susquehanna River, Pennsylvania, in July last. On the 4th of October, my friend, Mr. William Gilpin, shot a fine specimen at Digby, on the Bay of Fundy shore of this Province, which is now in my possession. I see in the "Report of the Birds of Massachusetts," that Dr. Brewer also obtained it some years ago in Massachusetts Bay.

Another rare visitor to a latitude so far north, was taken in our harbor about the time of the severe revolving southerly gale of the 30th of January last, the Purple Gallinule (*Gallinula martinica*, Baird). This is the first instance on record of its capture in Nova Scotia. — J. MATTHEW JONES, *Halifax, N. S.*